Remarks

A. Claims In The Case

Claims 6-20 and 78 are pending in the case. Claims 6, 8, and 78 have been amended.

B. Claim Objections

The Examiner rejected claim 78 based on informalities. Applicant has amended claim 78 for clarification to recite: "receiving, for each of at least two of the selected data elements, an input from the user specifying the place of the data element in a sequence of the two or more data elements." Applicant respectfully requests removal of the objection to claim 78.

C. The Claims Are Not Anticipated by French Under 35 U.S.C. § 102(b)

The Examiner rejected claims 6-16 as being anticipated by U.S. Patent No. 5,794,229 to French et al. (hereinafter "French"). Applicant respectfully disagrees with these rejections.

The standard for "anticipation" is one of fairly strict identity. To anticipate a claim of a patent, a single prior source must contain all the claimed essential elements. *Hybritech, Inc. v. Monoclonal Antibodies, Inc.*, 802 F.2d 1367, 231 U.S.P.Q.81, 91 (Fed. Cir. 1986); *In re Donahue*, 766 F.2d 531, 226 U.S.P.Q. 619, 621 (Fed. Cir. 1985).

Claim 6 has been amended to describe a combination of features including:

> storing a plurality of key definitions in a database table in a database of an Financial Service Organization (FSO) computer system, wherein the FSO computer system is configured to perform processing on FSO transaction-related data, wherein the key definitions in the database table are configured for use in processing FSO transaction-related data in the FSO computer system, wherein storing the plurality of key definitions in the table comprises, for each of at least two rows in the database table:
>
> displaying two or more key element representations on a display screen in data communication with the Financial Service Organization (FSO) computer system,;

receiving a selection by a user of at least two key element representations from the two or more displayed key element representations;

preparing a key definition from the two or more key elements corresponding to the at least two selected key element representations in response to the user selecting the at least two key element representations; and

storing the key definition in the database table; the key definition being configured for use in preparing a processing key value from a transaction-related data in the FSO computer system

Support for the amendments to the claims can be found in Applicant's specification at least on page 21, line 24 to page 23, line 12; page 27, line 20 to page 28, line 25; FIG. 10. The cited art does not appear to teach or suggest at least the above-quoted features of claim 6.

Regarding the feature "storing the key definition in the database; the key definition being configured for use in preparing a processing key value from a transaction-related data in the FSO computer system", the Examiner relies on French, col. 12, line 37-col. 13, line 3. The cited portion of French describes storing data in a column-wise basis, wherein a query can bring in only those columns of data that are of interest. The Examiner states "storing the key definition is inherent since it is simply saving the SQL statement because the SQL statement has to be saved somewhere on the computer in order for it to be seen." To rely on the theory of inherency, the examiner must "provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art." *Ex parte Levy*, 17 U.S.P.Q.2d 1461, 1464 (Bd. Pat. App. & Inter. 1990) (emphasis in original.) Inherency may not be established by probabilities or possibilities; the mere fact that a certain thing may result from a given set of circumstances is not sufficient. *In re Robertson*, 169 F.3d 743, 745 (Fed. Cir. 1999). Even if the SQL statement described in French had to be stored somewhere to be displayed, as the Examiner contends, Applicant submits that it is not inherent in French, and nothing in French teaches or suggests, the features of claim 6 of storing a plurality of key definitions in a database table, each key definition configured for use in preparing a processing key value from a transaction-related data in an FSO computer system. Moreover, Applicant submits that French does not teach or suggest storing a plurality of key definitions in a database table in a database of an Financial Service Organization (FSO) computer system, wherein the FSO computer system is configured to perform processing on FSO

transaction-related data, wherein the key definitions in the database table are configured for use in processing FSO transaction-related data in the FSO computer system, wherein storing the plurality of key definitions in the table comprises, for each of at least two rows in the database table: displaying two or more key element representations on a display screen in data communication with the Financial Service Organization (FSO) computer system, receiving a selection by a user of at least two key element representations from the two or more displayed key element representations; preparing a key definition from the two or more key elements corresponding to the at least two selected key element representations in response to the user selecting the at least two key element representations; and storing the key definition in the database table; the key definition being configured for use in preparing a processing key value from a transaction-related data in the FSO computer system.

Claim 6 further describes:

> wherein the processing key value is configured for use in locating a process control data set in the database in the FSO computer system, the process control data set comprising one or more process control data values and configured for use in processing the transaction-related data in the FSO computer system

Regarding the feature "wherein the processing key value is configured for use in locating a process control data set in the database in the FSO computer system, the process control data set comprising one or more process control data values and configured for use in processing the transaction-related data in the FSO computer system", the Examiner relies on a portion of French which states:

> In operation, the Client(s) issue one or more SQL commands to the Server. SQL commands may specify, for instance, a query for retrieving particular data (i.e., data records meeting the query condition) from the table 250. The syntax of SQL (Structured Query Language) is well documented; see, e.g., the above-mentioned An Introduction to Database Systems. In addition to retrieving the data from Database Server tables, the Client(s) also include the ability to insert new rows of data records into the table; Client(s) can also modify and/or delete existing records in the table.
>
> For enhancing the speed in which the Database Server stores, retrieves, and presents particular data records, the Server maintains one or more database indexes 271 on the table, under control of an Index Manager. A database index, typically maintained as a B-Tree data structure, allows the records of a table to be organized in many different

> ways, depending on a particular user's needs. An index may be constructed as a single disk file storing index key values together with unique record numbers. The former is a data quantity composed of one or more fields from a record; the values are used to arrange (logically) the database file records by some desired order (index expression). (French, column 7, lines 7-27).

The Examiner states: "(col. 7, lines 7-27 –the result when a SQL Query is run. The result will be displayed of all of the data in the SALES and DATE OF SALE columns)". Applicant disagrees that French teaches or suggests the above-quoted feature of claim 6. French discloses a client issuing SQL commands to a server to retrieve data. A database index allows records to be organized in many different ways. Applicant submits that French does not teach or suggest a processing key value configured for use in locating a process control data set in a database in the FSO computer system, the process control data set including one or more process control data values and configured for use in processing the transaction-related data. Moreover, French does not teach or suggest a process control data set configured for use in processing transaction-related data in a financial service organization computer system.

For at least the reasons stated above, the combination of the features of claim 6 are not taught or suggested by the cited art. Applicant requests removal of the rejection of claim 6 and the claims dependent thereon.

Applicant submits that many of the claims dependent on claim 6 are separately patentable. For example, claim 7 recites, in part, "wherein the user selecting the key element representations, the preparing the key definition, and the storing the key definition occur during a configuration of the FSO computer system." The Examiner cites column 7, lines 36-67, column 12, line 10 to column 13, line 3, and Fig. 3B of French. Applicant submits that the cited portions of French appear to relate to a server maintaining database indexes on tables, under the control of an Index Manager. In operation SQL statements received frm the clients are processed by an engine of the database server system. (See, e.g., French, column 7, lines 15-38). The cited portions further disclose queries encountered in decision support system (DSS) applications, and storing data in a column-wise basis to process such queries. (French, e.g., column 12, lines 10-

61). French does not appear to teach or suggest configuration of financial service organization computer systems. Moreover, claim 7 is directed to a method that includes selecting key element representations, and preparing and storing of a key definition occur during a configuration of a financial service organization (FSO) computer system. For example, Applicant's specification states:

> In one embodiment, the key definitions, key values, processing parameter values, and search masks may be constructed and stored during the configuration of the FSO system. Configuration of the FSO system may occur at the time the FSO system software programs and databases are initially installed and set up for processing FSO transactions. Configuration of the FSO system may also occur after the initial configuration performed during the installation of the FSO system. A configuration of the FSO system that occurs after the initial configuration may be called a reconfiguration of the FSO system.
> (page 6, line 27 to page 7, line 4)

Applicant submits that the cited portions of French do not appear to teach or suggest the user selecting the key element representations, preparing the key definition, and the storing the key definition occur during a configuration of a financial service organization computer system. As such, Applicant submits that the cited art does not appear to teach at least this feature in combination with the other features of the cited art.

Amended claim 8 recites, in part, "wherein the preparing the key definition from the one or more key elements further comprises the user specifying a sequence of the key elements in the key definition, wherein the user specifying a sequence of the key elements in the key definition comprises the user specifying the place of each of the selected key data element in a sequence of the selected key data elements for the key definition." The Examiner cites column 7, lines 2-24 of French, which state:

> ... In the foregoing employee table, for example, Position is one field, Date Hired is another, and so on. With this format, tables are easy for users to understand and use. Moreover, the flexibility of tables permits a user to define relationships between various items of data, as needed.
>
> In operation, the Client(s) issue one or more SQL commands to the Server. SQL commands may specify, for instance, a query for retrieving particular data (i.e., data records meeting the query condition) from the table 250. The syntax of SQL

> (Structured Query Language) is well documented; see, e.g., the above-mentioned An Introduction to Database Systems. In addition to retrieving the data from Database Server tables, the Client(s) also include the ability to insert new rows of data records into the table; Client(s) can also modify and/or delete existing records in the table.
>
> For enhancing the speed in which the Database Server stores, retrieves, and presents particular data records, the Server maintains one or more database indexes 271 on the table, under control of an Index Manager. A database index, typically maintained as a B-Tree data structure, allows the records of a table to be organized in many different ways, depending on a particular user's needs. An index may be constructed as a single disk file storing index key values together with unique record numbers.
> (French, column 7, lines 2-24).

Applicant submits that the cited portions of French appear to relate to a client issuing SQL commands to a server to retrieve particular data. Data indexes, such as in a B-Tree data structure, allow records to be organized in different ways. Applicant submits that the cited portions of French do not teach or suggest a method in which preparing the key definition from key elements further includes wherein preparing the key definition from the one or more key elements further comprises the user specifying a sequence of the key elements in the key definition, wherein the user specifying a sequence of the key elements in the key definition comprises the user the user inputting one or more sequence parameters, at least one of one or more sequence parameters specifying the place of one of a selected key data element in a sequence of the selected key data elements for the key definition. As such, Applicant submits that the cited art does not appear to teach at least this feature in combination with the other features of the cited art.

Claim 18 recites, in part, "wherein the user defining the one or more key masks further comprises the user selecting a mask field value from a plurality of mask field values for each of the one or more mask fields in each of the one or more key masks, and wherein the plurality of mask field values comprises an equal mask field value and a wildcard mask field value." Claim 18 is directed to a method that includes a user defining key mask field values for mask fields in one or more masks in which the mask field values include an equal mask field value and a wildcard mask field value. For example, Applicant's specification states:

> In one embodiment of a search mask table, mask field values may include an equal mask field values and a wildcard mask field value. In one embodiment, an equal mask field value may be entered by the user and displayed on the search mask entry display screen as an equal sign ("="), as illustrated in Figure 9. In one embodiment, a wildcard mask field value may be entered by the user and displayed on the search mask entry display screen as an asterisk ("*"), as illustrated in Figure 9. In one embodiment, an equal mask field value in a mask field may specify that, when constructing a processing key value from the data element values in a customer account data set during processing of the customer account data set, the key element value in the processing key value corresponding to the mask field will be set to the data element value from the customer account data set. In one embodiment, a wildcard mask field value in a mask field may specify that, when constructing a processing key value from the data element values in a customer account data set during processing of the customer account data set, the key element value in the processing key value corresponding to the mask field will be set to the low collating value for the data type of the key element.
> (Applicant's specification, page 25, line 26 to page 26, line 11).

The Examiner relies on Douceur, column 26, line 43 to column 27, line 62, for the above-quoted features of claim 18. The cited portions of Douceur discloses VALUE, MASK, and IMASK. Douceur further discloses that the purpose of each field differs between a pattern node and a branch node. The MASK field may specify the existence of a wildcard in the corresponding pattern. Applicant submits that Douceur does not teach or suggest a user defining the one or more key masks in which the user selects a mask field value from a plurality of mask field values for each of the one or more mask fields in each of the one or more key masks, and in which the plurality of mask field values comprises an equal mask field value and a wildcard mask field value.

Claim 19 recites, in part, "wherein the transaction-related data comprises a credit card transaction, and wherein the processing parameter value comprises one or more data values configured for processing the credit card transaction." With regard to this feature, the Examiner states:

> It would have been obvious to one having ordinary skill in the art at the time the invention was made to have the transaction-related data comprise a credit card transaction, and wherein the processing parameter value comprises one or more data values configured for processing the credit card transaction and to modify in French

since French does disclose product, price, and revenue in col. 12, lines 15-25 and because such a modification would allow French to have financial transaction data retained by a transaction processing system.

Applicant disagrees with the Examiner's assertion. The cited portion of French states:

```
SELECT Age, Gender, SUM(Revenue), COUNT(*)
        FROM Customers
        WHERE State IN ('MA', 'NY', 'RI', 'CT')
                AND Status = 'Active'
        GROUP BY Age, Gender;
SELECT State, Product, SUM(Revenue), AVG(Price)
        FROM Customers
        WHERE Product <> 'b'
                AND Code = 1
        GROUP BY State, Product
```

(French, column 12, lines 15-25)

Applicant submits that the cited portions of French do not teach or suggest the transaction-related data comprises a credit card transaction, and wherein the processing parameter value comprises one or more data values configured for processing the credit card transaction. Moreover, French is directed toward solutions for "Decision Support Systems" for analytical processing. French appears to teach away from configuring records of a database for transaction processing. For example, French states:

> The following description will focus on specific modifications to an SQL-based database server, such as System 240, for providing improved Decision Support query performance.
>
> A. DSS queries require a different design approach
>
> The present invention recognizes that the previously-described "needle-in-a-haystack" approach to information retrieval employed in OLTP [online transaction processing] environments is not well-suited for Decision Support Systems (DSS) applications. DSS applications, such as those used in conjunction with providing a "data warehouse," are employed for more analytical information processing. Instead of employing a simple query for pulling up records of a particular customer, a DSS query typically seeks information of a more general nature. A typical DSS query

> would, for instance, ask how many customers living in Massachusetts purchased more than thirty dollars of merchandise over the past year. To satisfy a query of this nature, a database system would have to examine a large percentage of the actual warehouse data, not just a few records.
>
> In fact, the individual records found in a DSS query are often not of interest to the user. .... Here, the sum of a particular category is more of interest to the user than the detail records of the particular transactions which contributed to that sum.
>
> The poor performance of OLTP systems in providing DSS stems from the architecture and design considerations underlying these systems. Quite simply, OLTP database engines have been architected and optimized for transaction processing to such an extent that they are not well-suited for analytical processing. The problem is due, in part, to how information is actually stored in OLTP systems. Such systems store rows of records arranged in a list of data pages (i.e., page "chain"). That approach is well-suited for transaction processing. When a system needs to retrieve a particular record, it need only bring in the corresponding data page which stores that record. If, on the other hand, analytical processing is required, this horizontal approach (i.e., storing particular rows to each data page) hampers system performance. A DSS query might, for instance, require the system to examine values in a particular column (or a few columns). Since the information is stored by row (i.e., horizontally) and not by column (i.e., vertically) in OLTP systems, those systems have to bring in all data pages in order to perform the DSS query. The underlying storage mechanism employed in OLTP systems, while perhaps optimal for transaction processing, is clearly suboptimal for Decision Support applications. Typical DSS queries look at several tables but only a small number of columns (relative to the total number of columns for a table). A system using the OLTP approach to storing data would have to bring in a multitude of data pages--data pages which largely consist of information which is simply not of interest in DSS queries. (French, column 8, line 15 to column 9, line 7) (emphasis added)

Thus, French appears to teach away from the features of claim 19 wherein the processing parameter value includes data values configured for processing transactions. For at least this reason, Applicant submits that it would not have been obvious to modify French as proposed by the Examiner such that a processing parameter value includes data values configured for processing a credit card transaction.

D. The Claims Are Not Obvious over French Under 35 U.S.C. § 103(a)

The Examiner rejected claim 78 as being obvious over French. Applicant respectfully

disagrees with this rejection.

In order to reject a claim as obvious, the Examiner has the burden of establishing a *prima facie* case of obviousness. *In re Warner* et al., 379 F.2d 1011, 154 U.S.P.Q. 173, 177-178 (C.C.P.A. 1967). To establish a *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. (emphasis added) *In re Royka*, 490 F.2d 981, 180 U.S.P.Q. 580 (C.C.P.A. 1974), MPEP § 2143.03. "All the words in a claim must be considered in judging the patentability of that claim against the prior art." (emphasis added) *In re Wilson*, 424 F.2d 1382, 1385 (C.C.P.A. 1970).

> Claim 78 has been amended to describe a combination of features including:
>
> receiving, for each of at least two of the selected data elements, an input from the user, the input comprising a sequence parameter specifying the place of the data element in a sequence of the two or more data elements,
> the selected data elements in the user-specified sequence defining a user-defined key, the user-defined key being configured during a configuration of the FSO computer system and describing a location of one or more corresponding data element values stored in an FSO database

Support for the amendments to the claim can be found in Applicant's specification at least on page 21, line 24 to page 23, line 12; and FIGS. 6 and 7. The cited art does not appear to teach or suggest at least the above-quoted feature of claim 78.

Claim 78 is directed to a method in which, during a configuration of a financial service organization computer system, for each of two or more selected data elements, the user enters a sequence parameter that specifies the place of the data element in a sequence. This sequence defines a user-defined key. Regarding the above-quoted features of claim 78, the Examiner relies on column 11, line 46 to column 12, line 7 of French, which state:

> According to the present invention, the Index Manager is "taught more" about the problem or query at hand. In a conventional system (e.g., Oracle), the Query Optimizer generally asks the indexes only simple questions, such as "what is the record for Account No. 35?" In the system of the present invention, in contrast, additional complexity has been pushed from the Optimizer down to a level which is closer to the data. In addition to requests for returning a particular record (e.g.,

> return the record for Account No. 35) in the system, operations such as SUM, AVG, MIN, MAX, COUNT DISTINCT, and the like are performed at the level of the data objects (e.g., data pages). Because the indexes understand the distribution of the data, the cardinality of the data, the range of values of the data, and the like, the indexes are much closer to the physical problem. They understand the physical nature of that column's attributes. As a result, they are better suited for these types of operations.
>
> In the case of the low cardinality value-based indexing technique, doing a GROUP BY is computationally cheap, because the index is ordered by group. Similarly, COUNT DISTINCT is computationally cheap; COUNT DISTINCT is another way of grouping things. SUM is also reasonably cheap. Consider a query on the number of dependents, a low cardinality field (e.g., values ranging from 1 to 10). Here, the system need only access the corresponding bit maps (i.e., 10 bit maps) for quickly determining how many bits are on. The Index Manager is modified to include an interface which allows it to receive some of the query information returning a page and offset for a given key value.
> (French, column 11, line 46, to column 12, line 7)

French discloses a system in which an Index Manager is "taught more" about a problem or query at hand. French further discloses that indexes may be ordered in different ways such as GROUP BY, COUNT DISTINCT, and SUM. The Index Manager may include an interface which allows it to receive some of the query information returning a page and offset for a given key value. French does not appear to relate to defining a sequence of elements in a key. Moreover, Applicant submits that French does not teach or suggest receiving from a user, for each of two or more selected data elements displayed, an input including a sequence parameter that specifies the place of the data element in a sequence specifying the place of the data element in a sequence of the two or more data elements, the selected data elements in the user-specified sequence defining a user-defined key, the user-defined key being configured during a configuration of a financial service organization (FSO) computer system.

For at least the reasons stated above, the combination of the features of claim 78 are not taught or suggested by the cited art. Applicant requests removal of the rejection of claim 78 and the claims dependent thereon.

E. Additional Comments

Based on the above, Applicant submits that all claims are now in condition for allowance. Favorable reconsideration is respectfully requested.

If any extension of time is required, Applicant hereby requests the appropriate extension of time. Applicant believes no fees are due with the submission of this response. If any fees are required, please charge those fees to Meyertons, Hood, Kivlin, Kowert & Goetzel, P.C. Deposit Account Number 50-1505/5053-31401/EBM.

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